

CLAIMS

1. A hydraulic drive unit arranged on a construction machine and provided with a main hydraulic pump, a first hydraulic cylinder and second hydraulic cylinder each of which has a rod chamber and a bottom chamber, a first directional control valve for controlling a flow of pressure oil to be fed from said main hydraulic pump to said first hydraulic cylinder, a second directional control valve for controlling a flow of pressure oil to be fed from said main hydraulic pump to said second hydraulic cylinder, a first control device for performing switching control of said first directional control valve, and a second control device for performing switching control of said second directional control valve, characterized in that:

said hydraulic drive unit is provided with communication control means for bringing said rod compartment of said first hydraulic cylinder and said bottom compartment of said second hydraulic cylinder into communication with each other when a pressure in said rod chamber of said first hydraulic cylinder has arisen to a high pressure of at least a predetermined pressure.

2. A hydraulic drive unit according to claim 1, wherein said communication control means comprises a communication line capable of bringing said rod chamber of said first hydraulic cylinder and said bottom chamber of said second hydraulic cylinder into communication with each other, reverse-flow prevention means arranged on said communication line for

inhibiting pressure oil from flowing from said bottom chamber of said second hydraulic cylinder toward said rod chamber of said first hydraulic cylinder, and a switching valve for shutting off said communication line when said pressure in said rod chamber of said first hydraulic cylinder is lower than said predetermined pressure but maintaining said communication line in a communicating state when said pressure in said rod chamber of said first hydraulic cylinder has arisen to at least said predetermined pressure.

10 3. A hydraulic drive means according to claim 2, wherein said switching valve includes a variable restriction element a degree of restriction of which varies in accordance with said pressure in said rod chamber of said hydraulic cylinder.

15 4. A hydraulic drive unit according to claim 2, further comprising variable restriction means, a degree of restriction of which varies in accordance with an amount of a manipulation of said second control device, on said communication line via which said bottom chamber of said second hydraulic cylinder and said reverse-flow prevention means are connected with each other.

20 5. A hydraulic drive unit according to any one of claims 2 and 3, further comprising a solenoid valve for producing a pilot hydraulic pressure signal to control a valve position of said switching valve, pressure detection means for detecting said pressure in said rod chamber of said first hydraulic cylinder, 25 manipulation amount detection means for detecting an amount of

a manipulation of said second control device, and a controller for being inputted with a pressure signal from said pressure detection means and a control signal from said manipulation amount detection means, performing predetermined processing, and outputting a drive signal to said solenoid valve.

6. A hydraulic drive unit according to any one of claims 1-5, wherein said construction machine is a hydraulic excavator having a revolving upperstructure, a boom pivotally mounted on said revolving upperstructure and an arm pivotally mounted on said boom, said first hydraulic cylinder is a boom cylinder for driving said boom, and said second hydraulic cylinder is an arm cylinder for driving said arm, and

said hydraulic drive unit further comprises communication control means for bringing a rod chamber of said boom cylinder and a bottom chamber of said arm cylinder into communication with each other when a pressure in said rod chamber of said boom cylinder has arisen to said high pressure of at least said predetermined pressure.

7. A hydraulic drive unit according to any one of claims 1-5, wherein said construction machine is a hydraulic excavator having a revolving upperstructure, a boom pivotally mounted on said revolving upperstructure, an arm pivotally mounted on said boom and a bucket pivotally mounted on said arm, said first hydraulic cylinder is a boom cylinder for driving said boom, and said second hydraulic cylinder is a bucket cylinder for

driving said bucket, and

said hydraulic drive unit further comprises communication control means for bringing a rod chamber of said boom cylinder and a bottom chamber of said bucket cylinder into communication with each other when a pressure in said rod chamber of said boom cylinder has arisen to said high pressure of at least said predetermined pressure.